

EXHIBIT A

1. (Previously presented) A magnetic recording medium comprising:
 - a substrate;
 - a first bcc underlayer formed on said substrate;
 - a second bcc underlayer formed over the first underlayer, said second underlayer comprising boron;
 - a third bcc underlayer substantially lacking boron formed over the second bcc underlayer; and
 - a magnetic alloy data recording layer.
2. (Original) Medium of claim 1 wherein said first, second and third underlayers comprise bcc Cr alloys, and the magnetic alloy data recording layer comprises a hcp Co alloy.
3. (Previously presented) Medium of claim 2 wherein said first underlayer substantially lacks boron.
4. (Previously presented) A magnetic recording medium comprising:
 - a substrate;
 - a first bcc underlayer formed on said substrate;
 - a second bcc underlayer formed over the first underlayer, said second underlayer comprising boron;
 - a third bcc underlayer formed over the second bcc underlayer; and
 - a magnetic alloy data recording layer,

wherein said first, second and third underlayers comprise bcc Cr alloys, and the magnetic alloy data recording layer comprises a hcp Co alloy,

and wherein said first and third underlayers comprise less than 1% boron.

5. (Original) Medium of claim 1 wherein said boron in said second underlayer causes grain separation in said magnetic alloy data recording layer.
6. (Original) Medium of claim 1 wherein said boron in said second underlayer causes a reduction in grain size in said magnetic alloy data recording layer.
7. (Original) Medium of claim 1 wherein said boron reduces noise in said magnetic recording medium.
8. (Original) Medium of claim 1 further comprising a nucleation layer formed between said third underlayer and said magnetic alloy data recording layer.
9. (Original) Medium of claim 1 further comprising an amorphous metallic layer between said substrate and said first underlayer.
10. (Original) Medium of claim 1 further comprising a coupling layer formed on said magnetic alloy data recording layer and a second magnetic layer formed on said coupling layer, wherein said magnetic alloy data recording layer and said second magnetic layer are antiferromagnetically coupled to one another.

11. (Original) A magnetic disk drive comprising the magnetic recording medium of claim 1.
12. (Previously presented) A magnetic recording medium comprising:
- a substrate;
 - a first underlayer comprising Cr formed on said substrate;
 - a second underlayer comprising Cr and at least one additive formed on said first underlayer;
 - a third underlayer comprising Cr formed on said second underlayer, said third underlayer having a bcc crystal structure and substantially lacking boron; and
 - a magnetic alloy data recording layer formed on said third underlayer, said additive causing grain separation in said magnetic alloy data recording layer.
13. (Previously presented) Medium of claim 12 wherein said first and second underlayers have a bcc crystal structure and said magnetic alloy data recording layer comprises a hcp Co alloy, and said first and third underlayers substantially lack said additive.
14. (Original) Medium of claim 12 wherein said additive reduces noise and grain size in said magnetic alloy data recording layer.
15. (Original) Medium of claim 12 further comprising a nucleation layer formed between said third underlayer and said magnetic alloy data recording layer.

16. (Original) Medium of claim 12 further comprising an amorphous metallic layer between said substrate and said first underlayer.

17. (Original) Medium of claim 12 further comprising a coupling layer formed on said magnetic alloy data recording layer and a second magnetic layer formed on said coupling layer, wherein said magnetic alloy data recording layer and said second magnetic layer are antiferromagnetically coupled to each other.

18. (Original) A magnetic disk drive comprising the magnetic recording medium of claim 12.

19. (Previously presented) A magnetic recording medium comprising:

- a substrate;
- a first underlayer comprising Cr formed on said substrate;
- a second underlayer comprising Cr and at least one additive formed on said first underlayer;
- a third underlayer comprising Cr formed on said second underlayer, said third underlayer having a bcc crystal structure, said third underlayer substantially lacking boron; and
- a magnetic alloy data recording layer formed on said third underlayer, said additive causing grain size reduction in said magnetic alloy data recording layer.

20. (Previously presented) Medium of claim 19 wherein said first and second underlayers have a bcc crystal structure and said magnetic alloy data recording layer

comprises a hcp Co alloy, and said first and third underlayer substantially lack said additive.

21. (Original) Medium of claim 19 further comprising a nucleation layer formed between said third underlayer and said magnetic alloy data recording layer.

22. (Original) Medium of claim 19 further comprising an amorphous metallic layer between said substrate and said first underlayer.

23. (Original) Medium of claim 19 further comprising a coupling layer formed on said magnetic alloy data recording layer and a second magnetic layer formed on said coupling layer, wherein said magnetic alloy data recording layer and said second magnetic layer are antiferromagnetically coupled to each other.

24. (Original) A magnetic disk drive comprising the magnetic recording medium of claim 19.

25. (Canceled)

26. (Previously presented) Magnetic recording medium of claim 1 wherein said third bcc underlayer lacks boron.

27. (Canceled)

28. (Currently amended) Magnetic recording medium of claim 12 wherein said third underlayer lacks boron.

29. (Canceled)

30. (Previously presented) A magnetic recording medium comprising:

a substrate;

a first underlayer comprising Cr formed on said substrate;

a second underlayer comprising Cr and at least one additive formed on said first underlayer;

a third underlayer comprising Cr formed on said second underlayer, said third underlayer having a bcc crystal structure; and

a magnetic alloy data recording layer formed on said third underlayer, said additive causing grain separation in said magnetic alloy data recording layer, wherein the content of boron in said third underlayer is less than 1%.

31. (Canceled)

32. (Canceled)

33. (Previously presented) A magnetic recording medium comprising:

a substrate;

a first underlayer comprising Cr formed on said substrate;

a second underlayer comprising Cr and at least one additive formed on said first underlayer;

a third underlayer comprising Cr formed on said second underlayer, said third underlayer having a bcc crystal structure; and

a magnetic alloy data recording layer formed on said third underlayer, said additive causing grain size reduction in said magnetic alloy data recording layer, wherein the content of boron in said third underlayer is less than 1%.

34. (Canceled).

35. (Previously presented) Magnetic recording medium of claim 19 wherein said third underlayer lacks boron.

36. (Previously presented) Magnetic recording medium of claim 1 wherein the boron in said third bcc underlayer, if any, is of insufficient concentration to degrade the SNR.

37. (Previously presented) Magnetic recording medium of claim 1 wherein the boron in said third bcc underlayer, if any, is of insufficient concentration to degrade grain size control.

38. (Previously presented) Magnetic recording medium of claim 1 wherein said magnetic alloy comprises a $11\bar{2}0$ hcp Co alloy.

39. (Previously presented) A method for manufacturing a magnetic recording medium comprising:

depositing a first bcc underlayer formed on a substrate;

depositing a second bcc underlayer over the first underlayer, said second underlayer comprising boron;

depositing a third bcc underlayer substantially lacking boron over the second bcc underlayer, said depositing of said third bcc underlayer being accomplished without deliberately adding boron to said third bcc underlayer; and

depositing a magnetic alloy data recording layer.

40. (New) Magnetic recording medium of claim 1 wherein said third bcc underlayer comprises more than 75% Cr.

41. (New) Magnetic recording medium of claim 40 wherein said third bcc underlayer also comprises Mo.